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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/435,373	11/05/1999	SHIGEKI OUCHI	RCOH-1020	5161

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KNOBLE & YOSHIDA
EIGHT PENN CENTER
SUITE 1350, 1628 JOHN F KENNEDY BLVD
PHILADELPHIA, PA 19103

EXAMINER

LE, BRIAN Q

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/435,373

Applicant(s)

OUCHI, SHIGEKI

Examiner

Brian Q Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Continued Prosecution Application

1. The request filed on May 02, 2003 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 10 is acceptable and a CPA has been established. An action on the CPA follows.

RESPONSE TO ARGUMENT

2. Applicant's arguments regarding Abe et al. U.S. Patent No. 6,289,121 reference with respect to claims 1 and 19 have been considered but are moot in view of the new ground(s) of rejection.

3. Applicant has provided evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as Abe et al. U.S. Patent No. 6,289,121 at the time this invention was made. Accordingly, Abe et al. U.S. Patent No. 6,289,121 is disqualified as prior art through 35 U.S.C. 102(e), (f) or (g) in any rejection under 35 U.S.C. 103(a) in this application.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 2 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The remarks filed on October 23, 2002, the Applicant claimed that FIG. 4 and specification page 10, lines 10-22

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supported the amended claims 1 and 19. However, nowhere in the mentioned locations by Applicant or anywhere else of the specification or the drawings show the teaching of “likelihood being determined by a **single value based upon multiple criteria** ... multiple criteria comprising natural language likelihood and **any combination of character row area coordinates, character type ... and character minimum circumscribing rectangle size**”.

Regarding claim 2, the claimed limitation “single value includes ... on said multiple criteria” was not support by the specification also. As best understood in relation to FIG. 7, the single value in the specification is not based on any multiple criteria, but only on one criteria for example boxes A504, A605, A704 ...etc in according to different methods.

6. Claims 1 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Again, nowhere in the mentioned locations by Applicant or anywhere else of the specification or the drawing show the teaching of “likelihood being determined by a **single value based upon multiple criteria** ... multiple criteria comprising natural langue likelihood and **any combination of character row area coordinates, character type ... and character minimum circumscribing rectangle size**.”

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-12, 15-30 and 33-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Katsuyama U.S. Patent No. 6,035,061.

Referring to claim 1, Katsuyama teaches a method of determining a title from a document image (FIG. 1, element 3), comprising:

Dividing the document image into minimal circumscribing rectangles which contain a character image (FIG. 18, "circumscribed rectangle");

Recognizing characters in said minimal circumscribing rectangles (and FIG. 5, S31 and FIG. 3, S5); and

Determining a title of the document image (FIG. 40, S112) based upon a likelihood of each of said minimal circumscribing rectangles containing a title (column 6, lines 1-6), said likelihood being determined by a single value based upon multiple criteria obtained during said character recognition and said title determination, said multiple criteria comprising natural language likelihood and any combination of character row area coordinates (relative position) (FIG. 40, S111), character minimum circumscribing rectangle coordinates (rectangle with information of relation of relative positions) (FIG. 40, S113), and character minimum circumscribing rectangle size (height) (FIG. 40, S111).

Referring to claim 2, Katsuyama teaches the concept of determining a tile from a document (as disclosed in claim 1) where single value includes (display/histogram) a sum of points (black pixels) (column 11, line 4-43) based on said multiple criteria.

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Regarding claim 3, Katsuyama teaches the method of determining a title from a document image wherein said multiple criteria include characteristics on font (column 6, lines 35-37).

For claim 4, Katsuyama teaches the method of determining a title from a document image where said font characteristics include a frequency of a particular font type (frequency value of heights) (FIG. 5, S22 and S26).

For claim 5, Katsuyama also discloses character recognition further includes an act of matching said characters with a set of predetermined words (predetermined threshold), said predetermined words indicating said title (column 6, lines 21-34).

And claim 6, Katsuyama describes a result of said matching with said multiple criteria include predetermined words (column 6, lines 21-34).

Regarding claim 7, Katsuyama teaches the method of determining a title from a document image wherein said multiple criteria include a number of said characters (FIG. 52, S149).

For claim 8, Katsuyama teaches the method of determining a title from a document image wherein said number of said characters is compared to a predetermined maximal threshold number (column 35, line 2-5).

Regarding claim 9, Katsuyama teaches multiple criteria include an assurance level of said character recognition (column 7, line 11-17).

For claim 10, Katsuyama further teaches an assurance level is compared to a predetermined maximal threshold ("at most") value (column 7, line 11-17).

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For claim 11, Katsuyama teaches the method of determining a title from a document image wherein said multiple criteria include layout characteristics (FIG. 53).

For claim 12, Katsuyama teaches multiple criteria that include centering and underlining (column 6, line 1-5 and column 22, line 37-40) size (column 8, lines 1-8), or any combination thereof (column 8, lines 19-22).

Regarding claim 15, Katsuyama teaches the concept wherein multiple criteria includes a ratio between a length and height of each of said circumscribing rectangles (column 22, line 0-9).

For claim 16, Katsuyama also teaches multiple criteria wherein includes a ratio between a summed width (column 10, line 67 and column 11, line 0-6) of said characters and a corresponding one of said circumscribing rectangles (column 23, line 0-10 and column 32, line 27-29).

Referring to claim 17, Katsuyama also teaches that likelihood can be adjusted according to a type of said image documents (column 8, line 10-22).

For claim 18, Katsuyama teaches a method wherein said title can be combined with a keyword (column 2, line 55-59).

For claim 19, please refer back to claim 1.

For claims 20-30, please refer back to explanation of claims 2-12 respectively.

Also for claims 33-36, please refer back to claims 15-18 respectively.

9. Claims 13, 14, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsuyama et al. U.S. Patent No. 6,035,061 as applied to claim 2 above, and further in view of Chen et al. U.S. Patent No. 5,745,600.

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Referring to claim 13, Katsuyama failed to disclose a method of determining a title from a document image wherein said multiple criteria indicates whether or not said characters end in a noun form. However, Chen teaches a method that identifies word wherein characters end in a various forms (column 15, line 10-55). Therefore, it would have been obvious for to determine whether characters are noun or other forms of the word to generate multiple criteria about the title of document images because each reference uses bounding boxes to located words and makes determinations about those words and determining the for of word allows easier verification of the areas of a document.

And to claim 14, Katsuyama also failed to disclose the method of determining a title from a document image wherein said multiple criteria indicates whether or not said characters end in a set of predetermined suffixes. Again, Chen further teaches a method that identifies world wherein multiple criteria indicates whether or not said characters end in a set of predetermined suffixes or prefixes (column 15, line 45-55). Modifying Katsuyama's method of title extracting according to Chen would increase the probability determining the title of the document by identifying the suffixes or prefixes. This would improve processing and therefore, it would have been obvious to one of ordinary skill in the art to modify Katsuyama's according to Chen.

For claims 31 and 32, please refer back to claims 13 and 14 respectively.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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The following patents are cited to further show the state of the art with respect to title extraction concept:

U.S. Pat. No. 5,892,843 to Zhou et al, teaches title, caption and photo extraction from scanned document images.

U.S. Pat. No. 6,327,387 to Naoi et al, teaches apparatus and method for extracting management information from image.

U.S. Pat. No. 6,137,905 to Takaoka, teaches a system for document orientation discrimination

U.S. Pat. No. 6,173,073 to Wang, teaches a system for analyzing table images.

U.S. Pat. No. 6,269,186 to Makita, teaches image processing relates to title extraction.

U.S. Pat. No. 6,226,402 to Katsuyama, teaches ruled line extracting for extracting ruled line from normal document image.

U.S. Pat. No. 5, 774,850 to Saitoh, teaches document image processing and system having function of determining body text region reading order.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 703-305-5083. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-5397 for regular communications and 703-308-5397 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC Customer Service whose telephone number is 703-306-0377.

BL

July 23, 2003


AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600